

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
PUBLIC NOTICE)	GN Docket No. 04-163
)	
Wireless Broadband Access Task Force Seeks)	
Public Comment On Issues Related To)	
Commission's Wireless Broadband Policies)	

COMMENTS OF THE SCHOOL BOARD OF BROWARD COUNTY

The School Board of Broward County ("SBBC") herewith responds to the captioned Public Notice, released May 5, 2004 (the "Public Notice"), by which the recently-established Wireless Broadband Access Task Force (the "Task Force") seeks comment on the Commission's spectrum management policies and regulations as they relate to the deployment of facilities by Wireless Internet Service Providers ("WISPs").

In SBBC's view it is imperative that the FCC's evolving broadband policies give due consideration to the vital necessity of broadband to the educational community. Although the Public Notice makes no reference to education, we are confident that this is not an intentional omission. In our contemporary 'knowledge culture', the extent of one's ability to participate meaningfully in society and play a productive role in the workplace, is more and more contingent on the nature and quality of one's education. Given this state of affairs, it is not an exaggeration to say that the advent of broadband platforms and broadband-enabled applications are momentous in large part because of what this augurs for public education. The full dimensionality of that proposition, however, is complex – and oftentimes is not adequately developed even in contemporary analyses of education policy. There is a danger that if the notion of broadband as a core

educational necessity is not articulated beyond its initial level of abstraction, the resulting policy will be flawed.

The risk that the magnitude of broadband's role in contemporary education might be *underquantified* is especially great in policy analyses for which the public interest calculus is heavily influenced by market economics. To be sure, competition, new investment, and innovation, working in dynamic interaction, can have profoundly salutary effects throughout the economy. There is today, however, a genuine sense in which public education is acquiring a logical priority not previously in play, such that it should be viewed as one of the vital predicates for the fullest realization of these other policy objectives over time. If our public schools do not produce students equipped to play a role in the global knowledge economy, innovation will be sub-par, our competitive prowess will be diluted, and new investment will go overseas.

As we discuss below, broadband capability is not merely a useful tool but a *sine qua non* for high-quality public education – that is, education of a nature and scope demanded by a knowledge-based economy. We urge the Task Force to keep that fundamental dynamic in mind as it generates its policy recommendations.

To help crystallize the conditions that must obtain in order for the link between broadband and public schools to be meaningful, we review below the features of today's environment that dictate the requirement of broadband capability. We then consider, in that context, the magnitude of broadband capacity that will be commensurate with those needs.

THE SIGNIFICANCE OF EDUCATION'S ROLE IN THE KNOWLEDGE ECONOMY AND OF BROADBAND'S ROLE IN CONTEMPORARY EDUCATION.

The magnitude of broadband's relevance to public education directly relates to the nature of contemporary society and the contemporary workplace. The changes underway in today's society are vast. In every realm – the professions, business, the family and home – conditions are significantly different from those of even ten years ago. With respect to virtually any subject matter or discipline, the knowledge base defining the scope of that discipline is expanding geometrically. Advanced technologies, communications media, and the Internet in particular, are at once the primary drivers of this accelerating expansion of knowledge and of its pervasive and instantaneous dissemination.

In tandem with this unprecedented enlargement of knowledge is the changing nature of work and commerce. More and more people work in sectors that require the ongoing creation, transformation and communication of knowledge. The value of a firm's employees is more and more a function of what they know, how well they can learn, and what they contribute to relevant knowledge bases. In earlier periods, it sufficed to have an educated elite and a general population with basic literacy skills. Today, however, almost any function that can be executed through the application of regular procedures will sooner or later be computerized. To be attractive to employers, an individual must be highly literate in the skills that drive a knowledge economy.

Correlative with these structural changes in the world of commerce are changes in the way that young people relate to events and to others. Today's K-12 students are connected to a web of people and information that surpasses anything in human history. As one observer has put it: "The movement from linear to hypermedia learning; from

instruction to discovery and learning by doing; from absorbing information to navigating and using it, from studying alone to studying collaboratively and globally; from mass education to mass customization; from learning as work to learning as entertainment and fun; and from teacher as transmitter to teacher as facilitator. For them, learning is not a matter of mass assimilations of information, but a very personal journey of discovery and of creating knowledge from thousands of resources.” A. Reynolds, “Evolving Models of Pedagogy,” *Conceptiv Policy Analyses* (Winter 2002).

These changes are so rapid and so decisive that it is untenable for schools to attempt to deal with them merely by making a few superficial adjustments. A high-speed broadband network for public school education represents a critical piece of the infrastructure necessary for teachers and learners to keep pace with the “anytime, anywhere” universe of information services emerging in the private sector. Among the features of the educational environment that broadband enables are: synchronous (real time) and asynchronous (on demand) interaction and collaboration across distances; greater use of data, text, graphics, voice, and video to supplement textbooks and instruction with multimedia formats that tap into the many different learning styles of students and teachers; and on-line delivery of instruction where the number of students is too small or a teacher is not available. Training students in the use of technology enhances learning and ensures that students have the skills necessary to be successful in today’s knowledge-based workforce. For students who do not have computer and Internet access at home, the school may be their only chance to develop computer literacy skills and information competency.

This is especially the case in large urban school districts. SBBC, for example, serves an economically, culturally, and academically diverse population that in many ways is a microcosm of present-day America. Its students represent 155 countries and speak 57 languages. This diversity is attributable in large part to socio-demographic trends that include the continual influx of immigrants from Central America, South America and the Caribbean, and a minority population that has increasingly exceeded that of non-minority students over the past decade. In 2000-2001, for example, 59 percent of SBBC students were minority. Students come from a spectrum of socio-economic and cultural backgrounds, abilities and disabilities, learning styles and family circumstances. Among total students enrolled in Broward County public schools, roughly 10 percent are Limited English Proficient; 14 percent have exceptionalities such as gifted or physically, mentally, or learning disabled; and 36 percent are eligible for free and reduced lunch. In addition, SBBC serves some 200,000 adult learners and is the largest provider of literacy services to the adult community in Broward County. Nearly 74,000 adults are enrolled in programs towards a degree or certification.

In addition, the pace and complexity of change place enormous demands on educators at all levels to access, interpret, and communicate information more rapidly than in the past. The proliferation of information about students, resources, and curriculum are increasing the difficulty of making decisions and developing quality education programs in a timely manner. Within a shared decision-making environment, information must be available to parents, teachers, principals, school boards, and administrators, and in many instances, even students, in order to bring about the optimal use of human and instructional resources. Educators must therefore have the adequate

network capacity for delivery of student support services to help with course selection, college placement, and entrance exam information, as well as career and vocational counseling; and for the voluminous information inherent in student data management operations.

**THE FCC SHOULD CRAFT POLICIES ENSURING THAT EDUCATORS
WILL HAVE SUFFICIENT BROADBAND NETWORK CAPACITY AND
OPERATIONAL FLEXIBILITY.**

Adequate bandwidth and operational flexibility are necessary to take advantage of broadband's promise. The ability to utilize a full range of multimedia and interactive learning resources depends on the speed of the connection. It is, quite literally, a question of how much data, graphics, voice, and video information can be transmitted, and how quickly this occurs. Moreover, bandwidth needs will grow rapidly over the next decade as network-based resources evolve and as users become more proficient in the use of such resources.

Although lower-speed connections afford some level of access to multimedia resources, differences in network speeds can produce huge variations in the quality of a student's learning experience. Downloading a 45-second instruction video (7MB file) with a dial-up connection to the Internet, using a 56 kbps modem, would take a student about 16 minutes. With an ISDN technology, the time would be 7.2 minutes, and with a low-end DSL connection the wait would be 2.3 minutes. However, with a T-1 connection, the time required would be reduced to 37 seconds; with a DS-3 connection, it would take merely 1 second.

These comparisons demonstrate why connection speeds below T-1 are not adequate to support on-line resources. High-speed networking is not simply a matter of

convenience; it is the defining factor in whether or not an on-line resource is usable in the classroom. If the connection speed is too low, teachers will not use the resource.

The existing applications in use are: Internet access; e-mail; video conferencing; IP-based applications; Wide Area Network traffic (administrative messages, file transfers, etc.); and online courses. These services are currently being supported on a wired basis over multiple T-1 lines. However, in order to implement the range of capabilities needed for ongoing instructional and administrative purposes and to accommodate rapid growth in the student population, new applications must be added to the network – and in the nature of things, it will be crucial that these be implemented largely through wireless platforms. Prospective new services include Internet access to homes of students, staff, and administrators; mobile Internet access to laptops and PDAs, inter-building connectivity, and connectivity to off-campus sites (libraries, tech centers, community buildings, etc.). These applications put current bandwidth requirements as follows: 10 Mbps to elementary schools, 20 Mbps to middle schools, administration buildings, and off-campus sites such as libraries and government buildings; 45 Mbps to high schools, and backhaul links of 155 Mbps.

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These conditions underscore that the FCC's broadband policy must countenance the paramount importance that broadband will play in public education. The Task Force should explicitly incorporate the 'education variable' into its analysis, however, not only for the sake of Education per se, but because of the ramified effects that a vigorous pro-education orientation will increasingly have on the FCC's general public interest calculus. Whenever the Commission adopts new rules or policies, a tacit premise is that

there is a pragmatic coherence between that regulatory framework and the external environment it aims to affect. The features of the external environment which the Commission's broadband policies are expressly designed to promote – in particular, competition, new investment, and innovation – are in the present era fundamentally the fruits of a knowledge-based culture and work force. Accordingly, the value of broadband to public education must be a focus of any responsible broadband assessment. We urge the Task Force to embrace this reality as it proceeds with its spectrum policy review.

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Respectfully submitted,

THE SCHOOL BOARD OF BROWARD COUNTY

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